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10/763,333	01/26/2004	Sung-Han Jung	0630-1942P	6966

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EXAMINER	
HINES, ANNE M	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/763,333	JUNG, SUNG-HAN	
	Examiner	Art Unit	
	Anne M. Hines	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *4-12* is/are allowed.

6)☒ Claim(s) *1* is/are rejected.

7)☒ Claim(s) *1-12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed on December 7, 2005, has been entered and acknowledged by the Examiner.

Claims 1-12 are pending in the instant application.

Claim Objections

Claims 1, 4, 7, and 10 are objected to because of the following informalities: The natural logarithm operation can only be preformed on unitless numbers. In the equations of these claims, the natural logarithm of U is taken where U has units of mm. Additionally, units are not provided for the constants add to either side of the inequalities. Units are required for all constants (excepting multiplicative constants) or variables appearing in an equation. If a constant or variable is unitless or treated as unitless in an equation this must be indicated. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tokita (US 4,537,321) and further in view of Lee (US 2003/0122474) and Okada et al. (US 4,537,322).

Tokita teaches a color CRT having a panel of which outer surface is substantially flat (Column 2, lines 20-22) and inner surface has a predetermined curvature and a funnel coupled to a rear side of the panel (Fig. 4), wherein an aspect ratio of an effective surface of the panel is 4:3 (Fig. 5; Column 6, lines 49-56), a diagonal size (U) of the el effective surface is 657 mm (Fig. 5; Column 6, lines 49-56), and the curvatures of the inner surface are: Rx=1550 mm, Ry=1300 mm, Rd=1450 mm (Fig. 5; Column 6, lines 49-56), and the lengths of the effective surface are: Lx=525.6 mm, Ly=394.2 mm, Ld=657 mm (Fig. 5; Column 6, lines 49-56). Tokita fails to teach the thickness of the center of the panel. However, the range of thicknesses that places the panel of Tokita within in the specifications of claim 1 is: 15-17.8mm. Lee teaches a panel with a center thickness of 19 mm (Page 5, Table 2) and Okada teaches a panel with a center thickness of 12 mm (Column 6, line 56). Lee teaches reducing the thickness of the panel in order to reduce the weight and increase the transmittance of the panel (Page 5, Paragraph [0080]). Okada teaches that the thickness of the panel is a significant factor in preventing implosion (Column 4, lines 6-11). Therefore it would have been obvious to one of ordinary skill in the art to modify the panel of Tokita to have a center thickness in the range of 15-17.8mm, as disclosed by Okada and Lee, in order to reduce the weight of the panel, increase the transmittance, and reduce the risk of implosion.

Allowable Subject Matter

Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 2, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 2, and specifically comprising the limitation wherein the thickness of the center point of the panel is in the range of 10-12.4mm.

Regarding claim 3, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 3, and specifically comprising the limitation wherein the following condition is satisfied:

$0.0875*\text{Ln}(U)-0.4192 \leq \text{OAH}/U \leq 0.0981*\text{Ln}(U)-0.4753$, and a tube axis directional distance from the center of the outer surface of the panel to a seal edge line is OAH and a diagonal size of the effective surface is U.

Claims 4, 7, and 10 would be allowable if rewritten or amended to overcome the objection (s) set forth in this Office action.

Regarding claim 4, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 4, and specifically comprising the limitation:

$-2.1319*\text{Ln}(U)+14.589 \leq ((Rh*Rv*Ro)/U)*Tc \leq -2.5462*\text{Ln}(u)+17.414$

Regarding claims 5 and 6, claims 5 and 6 are allowable for the reasons given in claim 4 because of their dependency status from claim 4.

Regarding claim 7, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 7, and specifically comprising the limitation:

$$-0.8629*\ln(U)+5.6754 \leq (Rh*Rv*Ro)/U*Tc \leq -1.0547*\ln(U)+6.9366$$

Regarding claims 8 and 9, claims 8 and 9 are allowable for the reasons given in claim 7 because of their dependency status from claim 7.

Regarding claim 10, the references of the Prior Art of record fail to teach or suggest the combination of the limitations as set forth in claim 10, and specifically comprising the limitation

$$-17.746*\ln(U)+116.49 \leq ((Rh*Rv*Ro)/U)*Tc \leq -20.322*\ln(U)+133.45$$

Regarding claims 11 and 12, claims 11 and 12 are allowable for the reasons given in claim 10 because of their dependency status from claim 10.

Response to Arguments

Applicant's arguments filed December 7, 2005 have been fully considered but they are not persuasive.

Applicant argues with regard to the objection to claims 1, 4, 7, and 10 that logarithmic units are abstract mathematical units that can be used to express any quantities, physical or mathematical, that are defined on a logarithmic scale, i.e. as being proportional to the value of a logarithm function. Applicant also argues that an

absolute measurement of length is actually a comparison of a length value to a reference value, and in this sense the parameter U is dimensionless. Applicant further argues that the disclosure is clear to one of ordinary skill in the art which parameters or equations are unitless. Applicant argues that units are not supplied for added or subtracted factors because they have no units associated with them. Finally, applicant argues that the equations are not limited to be determined in terms of millimeters, inches, or any other unit, as long as all of the dimensions are expressed in the same units.

The Examiner respectfully disagrees. The natural logarithm is based on the transcendental mathematical constant e (where e is approximately 2.71828) (see mathworld reference provided). An illustrative example:

$Ln(x)=y$ And the inverse: $e^{y}=x$

Since e does not have units, neither x nor y can have units. Further, applicant's argument that an absolute measurement of length is dimensionless is not persuasive, since the comparison between the measurement of length and the reference value is the reason that the measurement of length has units; if applicant's example 10mm length is compared to the reference value of a centimeter then the measurement of length becomes 1 cm. Since applicant argues that units are not supplied for added and subtracted factors because there are no units associated with them, the Examiner understands the applicant to be indicating these factors as unitless. Applicants duel arguments that the units for the equations are clear from the disclosure and that the equations are not limited by units so long as the same units are used throughout are

contradictory. The units that are used to calculate its shape dramatically affect the shape of the claimed CRT panel. The resulting shape of the panel is dependent on the units used to calculate the limits of the inequality since a constant is added or subtracted from the natural logarithm of the diagonal length.

Applicant argues with regard to claim 1 that the Okada reference teaches away from modifying the Tokita reference to arrive at the claimed invention. Applicant also argues that the Lee reference is not analogous to the Tokita and Okada references because it was filed "some eighteen and one-half years after Tokita or Okada was filed." Applicant further argues that the Lee is not analogous to Tokita and Okada because Lee teaches that the wedge rate is different for mask stretching type CRTs and formed mask-type color CRTs.

The Examiner respectfully disagrees. Claim 1 is rejected with Tokita in view of both Okada and Lee. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Additionally, to qualify as a prior art reference a reference must qualify as prior art over the instant application, not with reference to any of the other references with which it may be combined. Furthermore, neither the Tokita nor Okada references disclose which type of shadow mask is employed for the CRTs in these references respective inventions. In response to applicant's argument that the invention of Lee is nonanalogous art to Tokita and Okada, it has been held that a prior

art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Lee is in the same field of endeavor as the Tokita and Okada references as well as the instant application.

Applicant also argues with regard to claim 1 that there is a lack of motivation to modify the invention of Tokita to achieve an invention that claim 1 reads on.

The Examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Lee teaches reducing the thickness of the panel in order to reduce the weight and increase the transmittance of the panel (Page 5, Paragraph [0080]) and Okada teaches that the thickness of the panel is a significant factor in preventing implosion (Column 4, lines 6-11). As applicant pointed out, the primary reference Tokita also teaches that the thickness of the faceplate is an important factor preventing implosion (Column 6, lines 30-48; Column 7, lines 1-10). Since motivation to modify the thickness of the faceplate exists in all three prior art references, the

Examiner considers this to be sufficient motivation for one of ordinary skill in the art to modify the invention of Tokita.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne M. Hines whose telephone number is (571) 272-2285. The examiner can normally be reached on Monday through Friday from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anne M Hines
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Art Unit 2879

1/25/06

1/26/06.
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PRIMARY EXAMINER